Sun StorEdge™ L25 and L100 Modular Tape Libraries

Just the Facts

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Positioning

Figure 1. The Sun StorEdge™ L100 and L25 tape libraries

Introduction

Sun provides reliable data storage solutions that deliver comprehensive availability, access, and protection for its customers critical business data. The Sun StorEdge™ L25 and L100 tape libraries combine Sun's data continuance innovation, quality, and high standards that create exceptional performance, capacity, and value, helping to lower the total cost of ownership.

Whether the Sun StorEdge L25 and L100 products work in unison along with Sun's backup applications or data replication products or independently, their dependability meets critical data protection requirements and, more importantly, vital data recoverability. The Sun StorEdge L25 and L100 libraries implement advanced, scalable design with proven technologies that ease management and protection of business critical data in network environments, from the workgroup to the department.

Sun's leadership in data protection and storage is shown in the reliability, quality, and serviceability of the entire storage solutions family for easy, nondisruptive, end-to-end infrastructure integration.

The Sun StorEdge L25 and L100 modular tape libraries are designed for backup and restore of data in corporate IT environments. These products should be considered with all proposals for servers and/or primary (disk) storage. The Sun StorEdge L25 and L100 modular libraries can be linked in a rack system, via StackLink, creating a storage system that can be designed for the specific needs of the customer. These two libraries together can satisfy a wide range of backup and restore needs.

The Sun StorEdge L25 library is available with either an HVD or LVD interface and several tape drive types (all tape drives must be of the same type and interface). Each module has 25 LTO or 21 DLT/SDLT cartridge slots in two removable magazines, plus one fixed slot, for a native data capacity of up to 5 TB and a native throughput of up to 60 MB/sec. (216 GB per hour) when using LTO 2. Each magazine holds 12 LTO or 10 DLT/SDLT cartridges. The Sun StorEdge L25 library should be considered when the

primary data set is between 125 GB and 1.5 TB and the backup window for that data is from 1 to 10 hours.

L25	HVD	LVD
Drive Type	DLT8000, SDLT 220, LTO 1	SDLT 320, LTO 1 & 2
Number of Drives	1-2	1-2
Number of Cartridges	21 DLT8000/SDLT220, 25 LTO 1	21 SDLT 320, 25 LTO 1 & 2
Maximum Native Capacity	2.5TB (LTO 1)	5TB (LTO 2)
Maximum Native Throughput	30MB/sec (LTO 1)	60MB/sec (LTO 2)
Rackspace Required	4U	4U

At 13.5 EIU, the Sun StorEdge L100 library is one of the densest mid-range libraries in the market today. Each module is available with either an HVD or LVD interface with one to six[1] tape drives (all tape drives must be the same type and interface). Each module has 100 LTO or 84 DLT/SDLT total cartridge slots in eight removable magazines plus four fixed slots. Each magazine holds 12 LTO or 10 DLT/SDLT cartridges (note that one magazine and one fixed slot are removed when adding a sixth drive, so capacity is reduced).

The Sun StorEdge L100 library offers a native data capacity of up to 20 TB and a native throughput up to 180 MB/sec (648 GB per hour) when using LTO 2. The Sun StorEdge L100 library should be considered when the primary data set is between 1 TB and 6.5 TB and the backup window for that data is between one to 20 hours.

L100	HVD	LVD
Drive Type	DLT8000, SDLT 220, LTO 1	SDLT 320, LTO 1 & 2
Number of Drives	1-6 (6th drive reduces cart. Count)	1-6 (6th drive reduces cart. count)
Number of Cartridges(1-5 drives	84 DLT8000/SDLT220, 100 LTO 1	84 SDLT 320, 100 LTO 1 & 2
Number of Cartridges(6 drives)	87 LTO 1, 73 DLT/SDLT	87 LTO 1, 73 DLT/SDLT
Maximum Native Capacity	10TB (LTO 1)	20TB (LTO 2)
Maximum Native Throughput	90MB/sec (LTO 1)	180MB/sec (LTO 2)

Key Messages

- **Part of a complete tape backup/restore solution:** Combined with Sun Enterprise™ or Sun Fire™ servers and backup software (such VERITAS NetBackup or Solstice Backup™ software), the Sun StorEdge L25 and L100 tape libraries are a valuable part of a complete tape backup solution.
- **Flexibility:** The modular design allows customers to configure, buy, and add performance and capacity as data increases and protection needs change. The Sun StorEdge L25 and L100 tape libraries support several tape drive types. Choose LTO or SDLT for high capacity and throughput, and DLT8000 for legacy systems and for a lower pricepoint.
- **High data density:** With one of the densest products in the mid-range, customers can pack more data into a small amount of space.

[1] When configured with six tape drives, each Sun StorEdge L100 module has seven removable magazines and three fixed media slots to provide up to 87 LTO or 73 DLT/SDLT cartridge slots. When configured with one to five tape drives, each Sun StorEdge L100 module has eight removable magazines and four fixed media slots to provide up to 100 LTO or 84 DLT/SDLT cartridge slots.

- **Low cost of ownership:** The first automated tape libraries with the ability to intermix, the Sun StorEdge L25 and L100 tape libraries can mix and match with each other using the optional StackLink mechanism to scale across Sun's entire product line yielding a lower total cost of ownership.
- **Scalability**: Customers can add drive modules to increase throughputs, or add capacity with a second library module. Modular design allows buying storage in right-sized increments with easy upgrades to capacity and performance for maximum investment protection.
- **High performance, reliability, and availability:** The Sun StorEdge L25 and L100 tape libraries feature standard redundant power supplies and remote monitoring (as a required option).
- **Ease of use and administration:** Simple administration through bulk magazines, intuitive front panels, visible, automated robotics, and lowered time to repair make these libraries less costly, as they require fewer man-hours of administrative time
- **Excellent quality:** Sun has an extremely rigorous qualification testing and design collaboration process.
- **One-stop shopping:** Besides hardware and software, Sun offers worldwide installation (additional for the Sun StorEdge L25 library; included in the purchase price of the Sun StorEdge L100 base unit) and maintenance (via a SunSpectrum[SM] program contract) of the Sun StorEdge L25 and L100 tape libraries.

Product Availability

The Sun StorEdge L25 and L100 tape libraries are currently shipping or will ship with the following:

Interface Drive Type	*Availability*
HVD - DLT 8000, SDLT 220, LTO 1	Currently Shipping (DLT8000, SDLT 220 have limited lifespan)
LVD - SDLT 320	Currently Shipping
LVD - LTO 1	Currently Shipping
LVD - LTO 2	May 20, 2003
LVD-LTO 2 & SDLT 320 FC x-option	Q1FY04
Native FC LTO 2	Q2FY04

Key Features and Benefits

Feature	Benefit
• Ability to intermix	• The Sun StorEdge L25 and L100 libraries can be stacked to scale into larger systems and can be mixed[2] in an integrated stacked system. Customer can very easily grow and size system capacity to match application requirements. Multi-module systems integrate for cost-effective management by a single host or ISV package.

[2]Each Module in a stacked enviroment must contain the same tape drive type and interface. Mixing of drive types and interfaces is not supported.

Feature	Benefit
• Flexible capacity and performance	• These systems can grow as storage requirements increase. Customers can tailor system performance to match application requirements and adjust drive to cartridge ratios to match backup window requirements.
• True incremental scalability	• Investment protection. Ideal for situations where it is difficult to predict future storage requirements.
• Multiple robots utilized when additional modules are in place	• High-availability through multiple systems with no single point of failure
• Dedicated fixed media slots	• Utilized for data cartridges to maximize capacity or configure as cleaning cartridge slots for unattended drive cleaning.
• Full bulk access via removable magazines	• Operator convenience that protects cartridges and data integrity. Full data availability if a module fails by swapping magazine into a working unit.
• Smallest/most dense rack space	• Saves valuable customer rack and data center floor space
• Reliable tri-axial robotics	• Quiet, rapid cartridge swaps
• Ease of Service	• All parts accessible front and rear (no side access required)

Target Markets/Users

The Sun StorEdge L25 and L100 tape libraries serve all horizontal and vertical markets that require a scalable backup and archive solution.

The Sun StorEdge L25 and L100 libraries are designed for companies looking for the ability to cost-effectively scale their tape backup solution as their secondary storage needs increase. The modular design allows for easy upgrades, reliable tape backup, and highly available data protection where and when it is needed. With the greatest density per cubic foot in the midrange class, the Sun StorEdge L100 library requires very little valuable data center rack space to accommodate its compact design. The Sun StorEdge L25 and L100 libraries offer all the benefits of an enterprise-class library (scalability, redundancy, density and flexibility) at a mid-range price.

StorEdge L25 and L100 libraries with an LVD interface can be integrated in SAN environments utilizing the Fibre Channel x-option, when available. SANs provide infinite scalability of capacity enabling fail-over and redundancy options that would extremelely difficult to accomplish otherwise. In addition, backups can be performed without interuptions in service or degradation to a network's performance.

Industry/Customer	**Key Features to Highlight**
Mid-size companies to enterprise data centers that need from 840 GB to 20 TB of native secondary storage capacity.	Modular architecture allows cost-effective growth in data environments with unpredictable growth.
High-growth businesses that may need to switch to a distributed storage architecture	Modules can be quickly redeployed from a centralized strategy to a WAN or campus topology.

Product Family Placement

Because the optimal choice of a secondary storage system depends on customer requirements and sensitivities, Sun offers a family of solutions to help customers make the best choice for their specific requirements and budgets. Sun's tape library offerings include the following (note that all capacities listed are native):

	LTO I	***LTO 2***	***DLT8000***	***SDLT 220***	***SDLT 320***	***9840***
Sun StorEdge L7			280 GB			
Sun StorEdge L8	800 GB					
Sun StorEdge L25 modular tape library	2.5 TB	5 TB	840 GB	2.31 TB	3.40 TB	
Sun StorEdge L100 modular tape library	10 TB	20 TB	3.36 TB	9.24 TB	13.4TB	
Sun StorEdge L180 tape library	17.4 TB	34.8 TB	6.96 TB			3.48 TB
Sun StorEdge L700 tape library	67.8 TB	135.6 TB	27.6 TB			13.8 TB
Sun StorEdge L5500 tape library	550 TB	1,100 TB				120 TB
Sun StorEdge L6000 tape library						120 TB

Internationalization and Localization

The documentation provided with the Sun StorEdge L25 and L100 tape libraries is localized into nine languages on a CD. These are English, French, Japanese, Korean, Simplified Chinese, Traditional Chinese, Italian, German, Spanish, and Swedish. The operator control panel and printed user manual are in English only.

Selling Highlights

Market Value Proposition

The Sun StorEdge™ L25 and L100 libraries both provide extremely high scalability and flexibility in a rackmountable tape library market, offering enterprise-class features at a mid-range price. The Sun StorEdge L100 library is one of the most dense tape products available today.

These libraries allow the customer to buy storage capacity as needed, leveraging the total investment.

The high reliability and fault-tolerant components are designed to help ensure a low total cost of ownership and maximum system uptime.

Product Features

- 4U (L25) and 13.5U (L100) compact modules provide high density and conserve valuable rack space
- The ability to add drives or modules (via StackLink) as needed provides flexible capacity and performance
- System grows as storage requirements grow; StackLink (pass-through mechanism) allows a rackmounted configuration of two modules to function as an integrated, single library
- True incremental scalability (easy field expansion after initial installation)
- Leading tape drive technologies available
- Bar code standard
- Remote management standard (required option for first module) — Alert Notification via email
- Investment protection
- Ideal for storage requirements that are difficult to predict
- Add modules while others remain online and operational
- Independent modules run utilizing multiple robots (no single-point-of-failure robotics)
- High availability through standard redundant power supplies
- Fixed media slots can be used for data cartridges to allow for maximum capacity or configured as cleaning cartridge slots to allow for unattended drive cleaning
- Full bulk access via cartridge magazines; priority-access load port with the ability to add/remove one, 10, or 12 cartridges in each magazine while library remains online and operational
- Magazines are interchangeable between Sun StorEdge L25 and L100 libraries and work in both left and right sides
- Quiet, rapid cartridge swaps
- Advanced GUI front panel reduces training and simplifies library operation
- Control of entire system from any module; no dedicated master or slave
- Hot-swappable, hot-pluggable tape drives
- Universal auto-ranging 110 to 240VAC power supply for worldwide use

- Serviceable from the front and rear without removal from rack
- One million or more mean swaps between failures (MSBF)
- Scheduled preventative maintenance is not required
- 20 minute or less mean time to repair (MTTR)
- Standard warranty is 1 year 5 x 8 x next business day on-site. Warranty uplifts available.

Typical Applications

- Backup for active-use databases

  To help ensure capacity for multiple backups of data (daily, weekly, and monthly), tape capacity should be configured for at least three to five times the capacity of on-line storage. Typically, customers perform full backups on Saturday with incremental backups during the week.
- Archival
- Hierarchical storage management (HSM)

Ease of Use/Administration

Simple administration through bulk magazines, intuitive graphical user interface (GUI) control front panel, visible robotics, and library management features make management of the Sun StorEdge L25 and L100 libraries less costly by requiring fewer man hours of administrative time. Bulk loading allows for easy rotation of multiple generations of backup sets, practical transport and archival storage, and simplified labeling. The easy-to-read, intuitive front GUI control panel makes the libraries easy to understand, use and configure, including running diagnostic checks. Visible robotics indicate that the library is responding to instructions. Customers may avoid costly system downtime because all serviceable parts are accessible from the rear or front of the unit.

StackLink Mechanism

The StackLink is a pass-thru "elevator" mechanism that connects multiple Sun StorEdge™ L25 and/or L100 units by enabling cartridges to be passed from a slot in one module to an available drive in another module. This operation is completely transparent to the application software. The StackLink mechanism can move a cartridge from any module to any other module in less than 4 seconds (fully scaled configuration).

The following StackLink configuration table lists how many modules of each type can be used with the appropriate StackLink model number.

Sun StorEdge L25 and L100 Library StackLink Configurations

StackLink Type	Part Number	Rack Units	L25 only configurations	L100 only configurations	Mixed Configuration
StackLink2	SG-XSTACK2-MOD	8	2	0	Not applicable
StackLink5	SG-XSTACK5-MOD	20	5	0	1 L100 1 L25
StackLink7	SG-XSTACK7-MOD	28	7	2	1 L100 3 L25s

Unlike other elevator mechanisms, StackLink is not bolted to the back of the libraries. Instead, it sits independently in a "U" channel at the back of the library that allows modules to be removed and replaced in the rack without disturbing the operation of the StackLink itself. Therefore, all the other libraries in the stack continue to operate and can pass cartridges to other units even with library modules missing in the stack.

Visual representations of the some of the available StackLink configurations are shown below.

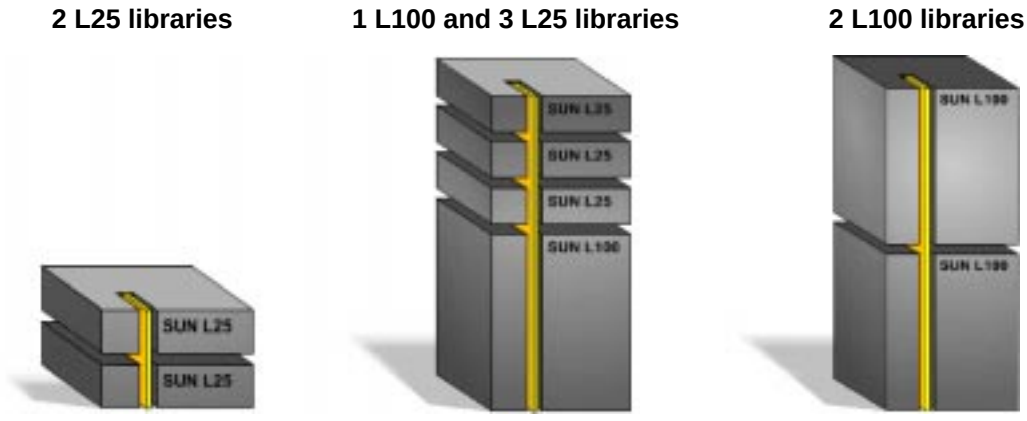


Figure 2. Example StackLink configurations

Reliability, Availability, and Serviceability (RAS)

Reliability, availability, and serviceability features for the Sun StorEdge™ L25 and L1000 tape libraries are listed in this section.

Reliability

- Mean time between failure (MTBF): 500,000 (L100) and 250,000 (L25) power-on hours
- Mean swaps between failure (MSBF): greater than 1,000,000
- Redundant power supplies standard

Illustration 1- L100 shown w/Dual Redundant Power Supplies

Availability

- Hot-swap tape drives and power supplies
- Stack system auto-negotiation

  If the master unit in a stack fails, the next unit becomes the master, keeping the rest of the system online. Note that remote management is not available in the event of the failure of the master, unless another module contains a management card, and the unit is manually switched over to master.

Serviceability

- All field replaceable units (FRUs) can be accessed from the front or back of the module, which allows for on-site repair of the module without having to disassemble the rack system.
- 20 minute or less mean time to repair (MTTR)
- L25 & L100 standard warranty: 1 year, next business day on site
- 5 x 8 Help Desk Support
- Customer-based call closure
- World-wide distributed parts management
- Global escalalation policy

Specifications

Physical Dimensions

Feature	Sun StorEdge L25 Library		Sun StorEdge L100 Library	
	US	Metric	US	Metric
Height	6.9 in.	176 mm	23.6 in.	599 mm
Width	19.0 in.	482 mm	19.0 in.	482 mm
Depth	28.6 in.	726 mm	28.6 in.	726 mm
Weight (w/o drives)	75 lb.	34 kg	210 lb.	95.3 kg

Environment

Feature	Sun StorEdge L25 Library		Sun StorEdge L100 Library	
	US	Metric	US	Metric
Power, Operating • Typical • Maximum	200 Watts 250 Watts		320 Watts 400 Watts	
Temperature • Operating • Nonoperating	+50°F to +104°F -40°F to +140°F	+10°C to +40°C -40°C to +60°C	+50°F to +104°F -40°F to +140°F	+10°C to +40°C -40°C to +60°C
Relative Humidity • Operating • Nonoperating	20% to 80% noncondensing 5% to 90% noncondensing		20% to 80% noncondensing 10% to 95% noncondensing	
Altitude • Operating • Nonoperating	-1,000 to +10,000 ft -1,000 to +36,000 ft	-300 to +3,000 meters -300 to +11,000 meters	0 to +8,000 ft 0 to +36,000 ft	0 to +2,438 meters 0 to +11,000 meters
Vibration	0.21gRMS (random) 0.25 g (5-500-5 Hz, 5 sweeps), operating axis (bottom)			
Shock	4.0 g, 11 msec. half-sine, applied in all six directions			
Noise (in accordance with ISO 9296)	7.5 Bels operating 7.0 Bels idle			

Regulations

This information applies to both the Sun StorEdge L25 and L100 libraries.

Category	Specifications
Safety	UL-1950, CSA C22.2 950, EN 60950
RFI/EMI	FCC CFR 47-15J (Level A), EN55022 (CISPR 22) Level A, EN 55024 (CISPR 24), VCCI
Agency Markings	CE, VCCI, UL, FCC, CSA

Media and Drive Specifications

Tape Drive Specifications

Feature	DLT8000	LTO 1	LTO 2	SDLT 220	SDLT 320
Capacity	40 GB native	100 GB native	200 GB native	110 GB native	160 GB native
Transfer Rate Sustained	6 MB/sec. native	15 MB/sec. native	30 MB/sec. native	11 MB/sec. native	16 MB/sec. native
Transfer Rate (GB/hr)	21.6 GB/hr	54 GB/hr	108GB/hr	39.6GB/hr	57.6/GB/hr
Transfer Rate Peak	20 MB/sec. burst, synchronous	40 MB/sec. burst	40 MB/sec. burst	40 MB/sec. burst	80 MB/sec. burst
Track Format	Proprietary, linear serpentine	Proprietary, linear serpentine	Proprietary, linear serpentine	Proprietary, linear serpentine	Proprietary, linear serpentine
Load to BOT Time	37 seconds	<10 seconds	<10 seconds	12 seconds	12 seconds
Max. Rewind Time	120 seconds	152 seconds	152 seconds	140 seconds	140 seconds
Average Access Time	60 seconds	76 seconds	76 seconds	70 seconds	70 seconds
Unload from BOT	17 seconds	3 seconds	3 seconds	12 seconds	12 seconds
Buffer Size	8 MB	64 MB	64 MB	8 MB	8 MB
Drive Life	50,000 hours (max. head life)	250,000 hours @ 100% duty cycle	250,000 hours @ 100% duty cycle	250,000 hours @ 100% duty cycle	250,000 hours @ 100% duty cycle

Tape Cartridge (Media) Specifications

Feature	DLTtape IV	LTO Ultrium 1	LTO Ultrium 2	Super DLTtape I
Archival Life	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss
Media Life	1,000,000 write/read passes	25,000 write/read passes	25,000 write/read passes	1,000,000 write/read passes
Media Operating Temperature	10º C to 40º C (max. gradient: 10 degrees C/hr)	10º C to 45º C (max. Gradient: 11º C/Hr)	10º C to 45º C (max. Gradient: 11º C/Hr)	10º C to 40º C (max. gradient: 10 degrees C/hr)

Feature	DLTtape IV	LTO Ultrium 1	LTO Ultrium 2	Super DLTtape I
Media Operating Relative Humidity	20% to 80% (max. Gradient: 10%/Hr)	20% to 80% (max. Gradient: 10%/Hr)	20% to 80% (max. Gradient: 10%/Hr)	20% to 80% (max. Gradient: 10%/Hr)
Media Operating Maximum Wet Bulb Temp.	26ºC	26ºC	26ºC	25ºC
Uncorrected Bit Error Rate	1 x 10^{17} bits read	< 1 in 10^{17} bits	< 1 in 10^{17} bits	1 x 10^{17} bits read
Loads/Unloads	15,000 minimum	300,000 (no thread)	300,000 (no thread)	15,000 minimum

Tape Drive Cleaning

Cleaning cartridges can be put into any open slot in the library. Once the library performs an inventory, it identifies to the application software where the cartridge is for accessibility. The Sun StorEdge L25 and L100 tape libraries do not have auto-clean features. It is up to the ISV to initiate a cleaning requirement. When the drive requires cleaning, it sends a "cleaning required" message to the host.

Note: *A bad tape may trigger a cleaning request message. However, this does not mean the head needs cleaning, since the next good tape loaded resets the cleaning request message. If the tape cleaning message keeps appearing, the drive needs to be cleaned.*

System Compatibility

Operating Environment Support

- Solaris™ 2.6, 7, 8, and 9 Operating Environment (LVD libraries supported on Solaris 8 & 9 ONLY.

Patch Information (HVD libraries)	
Solaris 2.6	105847-13
Solaris 7	107460-12
Solaris 8	108725-09
Solaris 9	No patches necessary at this time

Patch Information (LVD libraries)	
Solaris 8	108725-09
Solaris 9	No patches necessary at this time

Software Compatibility

HVD	**LVD**
VERITAS NetBackup 3.4 or later, with patches	VERITAS NetBackup 4.5 or later, with patches
Solstice Backup™ 6.1 software or later, with patches	Solstice Backup™ 6.1 software or later, with patches
Enterprise Backup Software 7.0 and later, with patches	Enterprise Backup Software 7.0 and later, with patches
Utilization Suite 4.0 and later	Utilization Suite 3.1 and later

Hardware Compatibility

The following table lists supported platforms and HBAs for the Sun StorEdge™ L25 and L100 libraries.

L25 & L100

	HVD	***LVD***
Supported Platforms	Blade 1000, 2000 E 220R, 250, 420R, 450, x500, 10K F 280R, v480R, v880, v1280, x800, 4810, 12K, 15K Netra 20, t1120/1125, 1400/1405, 1280 Ultra 60 & 80	Blade 1000, 2000 E 220R, 250, 420R, 450 F 280R, v480R, v880, v1280, 48XX, 6800, 12K, 15K Netra 20, t1120/1125, 1400/1405, 1280 Ultra 60 & 80
Supported HBAs	X1065A, X6541A, X6749A	X6758A

User Interfaces

Management Card

The Sun StorEdge L25 and L100 libraries can be remotely managed via a management card (noted in manuals as the MC300). The management card consists of two powerful tools: ALERT Notification and ALERT Library Management.

ALERT Notification signals the user of any error conditions within the library (or the entire stack) through email.

ALERT Library Management allows remote access to the status of the library and components, such as tape drives or robotics, allowing the user to quickly react to issues and administer a resolution. One management card is required for each library (or group of libraries). A single card has the ability to provide status of any of the libraries within the stack where it resides.

- **ALERT Notification provides:**
  - Email status of library events to one or more specified email addresses, to provide proactive response to library events
- **ALERT Library Management allows:**
  - Viewing of library availability
  - Examining the status of library components such as drives and robotics
  - Moving tapes to/from slots, drives or load port
  - Monitoring barcodes of tape cartridges (inventory of library)
  - Initiating drive cleaning
  - Running diagnostics

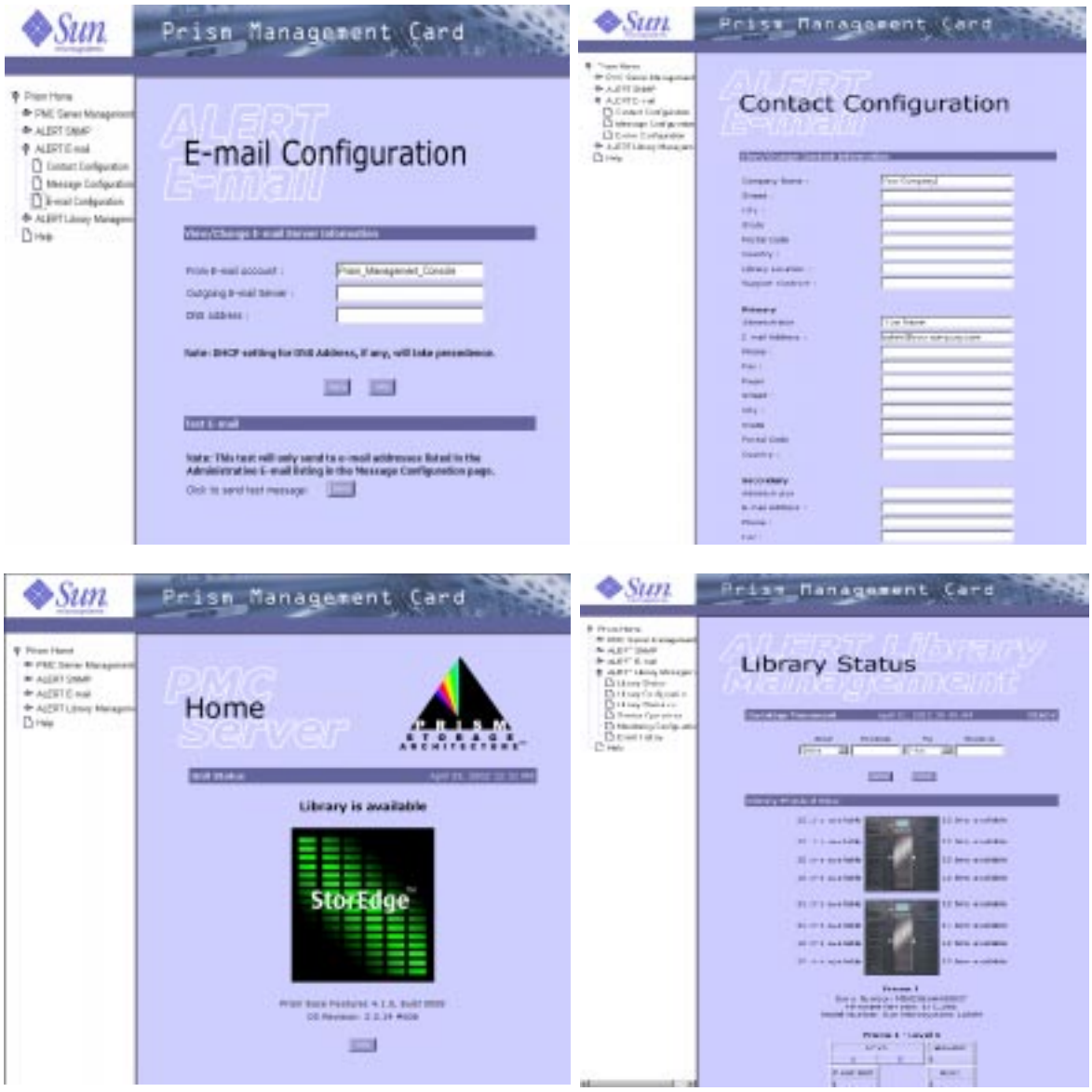
Two of the important library management features are described below in more detail.

Remote Front Panel

ALERT Library Management provides a menu-driven remote interface that includes nearly all the functions available on the front panel of the library itself. From a remote browser anywhere in the world, the system administrator can check the status of the library, reconfigure the library, move tapes to and from drives and to the load ports, and initiate drive cleaning and system tests. The graphical representation of the slots and drives in the library shows the location of all tape media, including the barcode labels. Performing operations such as unloading tapes via the load port by initially moving tape cartridges from the slots via the browser is a convenient management technique that saves time and money. For example, the tapes can be ready in the load port when the operator goes to the library to retrieve them.

Component-Level Diagnostics

ALERT Library Management allows the system administrator to check the status of the most critical library component — the tape drives. If the E-Mail Home system signals an error condition at the library, the administrator can check the status of individual subsystems in the library, or can insert a tape in the drive that is showing the error. The ability to remotely perform diagnostics can help eliminate the need for the administrator to go to the data center if an error condition arises, saving valuable time.



Software Compatibility

The Sun StorEdge L25 and L100 tape libraries are supported by VERITAS NetBackup, Solstice Backup software, and many other storage management software applications. Refer to the SunSolve web site at `http://sunsolve.sun.com` for the appropriate patches.

These libraries are supported on leading database applications:

- Informix
- Lotus Notes on Microsoft Windows NT
- Lotus Notes on SPARC™ systems
- MS Exchange
- Oracle
- Oracle on Microsoft Windows NT
- SAP
- Sybase

- MS SQL Server

Software Commands

VERITAS NetBackup and Solstice Backup storage management applications have their own documentation, which helps users get set up and running with tape automation products such as the Sun StorEdge L25 and/or L100 tape libraries.

Controller

If the library controller fails, the library is considered non-functional. Since the robotics controller communicates with the robot and all functional controls and calibration values are held on that board, the library is "dead" (even in a manual mode) if a failure occurs with the library controller. This has no impact on the data stored on the tapes in the library, and the tapes are accessible via bulk magazine unload.

Racks

The Sun StorEdge L25 and L100 tape libraries fit into and is supported in the standard 72-inch Sun StorEdge rack. The Sun StorEdge L25 library is 4U, and the Sun StorEdge L100 library is 13.5U. Base units ship with a rackmount kit for the Sun StorEdge rack.

Support for the Sun Rack 900 and non-Sun standard 19” racks will be available in either late Q1FY03 or early Q1FY04.

Ordering Information

Follow the steps described in the instructions below to order a Sun StorEdge™ L25 or L100 tape library. Due to outsourcing of service to Quantum on both the Sun StorEdgeL25 and L100 libraries, a service notification process must be followed prior to order shipments. This process is also used to initiate installation for the Sun StorEdge L100 library.

Sun StorEdge L25 & L100 part numbers:

	HVD	LVD
L25		
DLT/SDLT base unit	SG-XLIBL25D-BASE	SG-XLIBL25SDL-BASE
LTO base unit	SG-XLIBL25L-BASE	SG-XLIBL25LLV-BASE
Cosmetic cover/feet	SG-XLIBCOV-L25	
L100		
DLT/SDLT base unit	SG-XLIBL100D-BASE	SG-XLIBL100SDLV-BS
LTO base unit	SG-XLIBL100L-BASE	SG-XLIBL100LLV-BS
Cosmetic cover/feet	SG-XLIBCOV-L100	
Drives		
DLT8000	SG-XTAPDLT8-MOD	
SDLT 220	SG-XTAPSDLT2-MOD	
LTO gen 1	SG-XTAPLTO-MOD	SG-XTAPLTOLVD-MOD
SDLT 320		SG-XTAPSDLT3-MOD
LTO gen 2		SG-XTAPLTO2LVD-MOD
Other		
Mgmt card	SG-XMGMTCARD-MOD	SG-XMGMTCARDL-MOD
FC card		SG-XFC420CARD-MOD
DLT magazine	SG-XMAGDLT-MOD	
LTO magazine	SG-XMAGLTO-MOD	
StackLink 2	SG-XSTACK2-MOD	
StackLink 5	SG-XSTACK5-MOD	

NOTE: Service notification is required. This is done through RSCOPETOOL. The salesperson or SE enters the customer information including customer name, installation address, phone number, and contact name. The Oracle sales order number is also required.

Ordering Flowcharts – please refer to the proper interface type:

L25 Configuration Guide (SCSI - LVD) (SDLT320, LTO, LTO2)

Step 1 (Required) L25 Library Base Configuration

Order quantity (1)

- SG-XLIBL25SDL-BASE SDLT320 Base Low-Voltage Differential (LVD)
- SG-XLIBL25LLV-BASE LTO/LTO2 Base Low-Voltage Differential (LVD)

Each Base Config Includes:

- Library Enclosure (Rackmount)
- One US Power Cord
- Install and User Guides CD-ROM
- (99) SDLT data cartridge barcode labels and (33) cleaning cartridge barcode labels (SDLT Only)
- (220) LTO/LTO2 data cartridge barcode labels and (33) cleaning cartridge barcode labels (LTO/LTO2 Only)

Notes:

- Base configurations do not include any tape drives and need to be ordered separately.
- Installation is not included with the L25, so customers who do not wish to install the L25 themselves could contact Sun Service on a time and material basis.

Step 2 (Optional) Tape Drives

Order up to (2) per L25.

- SG-XTAPSDLT3-MOD SDLT320 Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)
- SG-XTAPLTOLVD-MOD LTO LVD Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)
- SG-XTAPLTO2LVD-MOD LTO2 LVD Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)

Notes:

- Different drive types **cannot** be mixed in a library.

Each Tape Drive Includes:

- Tape drive
- Installation guide
- SCSI jumper cable and Terminator
- (2) drive filler plates

Step 3 (Required) Host Bus Adapters

Order quantity (1).

- X6758A PCI, Dual-channel Low-Voltage Differential (LVD) (VHDCI Connectors)

Notes:

- Cables are not included with the X6758A HBA.

Step 4 (Required) SCSI Cables

Order quantity (1).

- X3830A 4-meter for use with the X6758A HBAs (HD68-VHDCI68 connectors)
- X3831A 10-meter for use with the X6758A HBAs (HD68-VHDCI68 connectors)

Notes:
- Up to (2) SDLT320, LTO or LTO2 LVD tape drives can be connected per X6758A SCSI channel.

Step 5 (Optional) Media

SDLT320 Media
- SG-XMEDSDLT220-10 10 pack of SDLT320 data cartridges
- SG-XMEDSDLTCL-10 10 pack of SDLT320 cleaning cartridges

LTO Media
- SG-XMEDLTO100GB-10 10 pack of LTO data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO/LTO2 cleaning cartridges

LTO2 Media
- SG-XMEDLTO200GB-10 10 pack of LTO2 data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO/LTO2 cleaning cartridges

Step 6 (Optional) Additional Media Magazines

Each L25 ships with (2) media magazines. Additional magazines can be ordered to store cartridges outside of the library. Additional magazines should probably only be quoted at the customers request.

SDLT320 Media Magazines
- SG-XMAGDLT-MOD

LTO Media Magazines
- SG-XMAGLTO-MOD

Notes:
- Each SDLT320 media magazine holds (10) cartridges.
- Each LTO/LTO2 media magazine holds (12) cartridges.

Step 7 (Required) Management Card

Order quantity (1). Allows customer to remotely manage the L25 via a web browser.
- SG-XMGMTCARDL-MOD - LVD Management Card for SDLT320, LTO and LTO2 LVD Libraries.

Notes:
- The Management Card is only required in one of the libraries when StackLinking multiple libraries together.

Step 8 (Optional) L25 Cosmetic Cover and Caster Kit

Order quantity (1) if customer wants to convert the rackmount L25 library to a deskside L25.
- SG-XLIBCOV-L25

Step 9 (Optional) StackLink Assemblies

Order quantity (1) if customer wants to connect multiple libraries together.

StackLink2, to connect (2)L25s together
- SG-XSTACK2-MOD (8 rack units)

StackLink5, to connect (5)L25s together, **OR** to connect (1)L100 and (1)L25 together
- SG-XSTACK5-MOD (20 rack units)

StackLink7, to connect (7)L25s together, **OR** to connect (1)L100 and up to (3)L25s together
- SG-XSTACK7-MOD (28 rack units)

Notes:
- Libraries using different drive types **cannot** be stacklinked together.

L25 Configuration Guide (SCSI - HVD) (DLT8000, SDLT220, LTO)

Step 1 (Required) L25 Library Base Configuration

Order quantity (1)

- SG-XLIBL25D-BASE DLT8000, SDLT220 Base High-Voltage Differential (HVD)
- SG-XLIBL25L-BASE LTO Base High-Voltage Differential (HVD)

Each Base Config Includes:

- Library Enclosure (Rackmount)
- One US Power Cord
- Install and User Guides CD-ROM
- (99) DLT/SDLT data cartridge barcode labels and (33) cleaning cartridge barcode labels (DLT/SDLT Only)
- (220) LTO data cartridge barcode labels and (33) cleaning cartridge barcode labels (LTO Only)

Notes:

- Base configurations do not include any tape drives and need to be ordered separately.
- Installation is not included with the L25, so customers who do not wish to install the L25 themselves could contact Sun Service on a time and material basis.

Step 2 (Optional) Tape Drives

Order up to (2) per L25.

- SG-XTAPDLT8-MOD DLT8000 Tape Drive High-Voltage Differential (HVD) (HD68 Connector)
- SG-XTAPSDLT2-MOD SDLT220 Tape Drive High-Voltage Differential (HVD) (HD68 Connector)
- SG-XTAPLTO-MOD LTO Tape Drive High-Voltage Differential (HVD) (HD68 Connector)

Notes:

- Different drive types **cannot** be mixed in a library.

Each Tape Drive Includes:

- Tape drive
- SCSI jumper cable, Terminator and Installation guide
- (2) drive filler plates

Step 3 (Required) Host Bus Adapters

Order appropriate HBA and quantity. (see notes)

- X6541A PCI, Dual-channel High-Voltage Differential (HVD) (VHDCI Connectors)
- X1065A SBUS, Single-channel High-Voltage Differential (HVD) (HD68 Connector)
- X6749A cPCI, Dual-channel High-Voltage Differential (HVD) (VHDCI Connectors)

Notes:

Using DLT8000 Tape Drives

- Order qty (1) X6541A or X6749A. Up to (2) DLT8000 drives can be connected to each SCSI channel.
- Order qty (1) X1065A. Up to (2) DLT8000 drives can be connected to the single SCSI channel.

Using LTO or SDLT220 Tape Drives

- One X6541A or X6749A needed for each (2) tape drives in the library.

- One X1065A needed for each (1) tape drive in the library.

Step 4 (Required) SCSI Cables

Order appropriate cable and quantity. (see notes)

- X3830A 4-meter for use with the X6541A or X6749A HBAs (HD68-VHDCI68 connectors)
- X3831A 10-meter for use with the X6541A or X6749A HBAs (HD68-VHDCI68 connectors)
- X979A 12-meter for use with the X1065A HBA (HD68-HD68 connectors)

- Notes:
- Order (1) cable for each (2) DLT8000 tape drives in the library.
- Order (1) cable for each (1) LTO or SDLT220 tape drive in the library.
- The X6541A HBA ships with two 2-meter SCSI cables, so additional cables may not be needed.

Step 5 (Optional) Media

DLT8000 Media

- SG-XMEDDLTCIV-10 10 pack of DLT data cartridges
- SG-XMEDDLTCL-10 10 pack of DLT cleaning cartridges

SDLT220 Media

- SG-XMEDSDLT220-10 10 pack of SDLT220/SDLT320 data cartridges
- SG-XMEDSDLTCL-10 10 pack of SDLT220/SDLT320 cleaning cartridges

LTO Media

- SG-XMEDLTO100GB-10 10 pack of LTO data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO cleaning cartridges

Step 6 (Optional) Additional Media Magazines

Each L25 ships with (2) media magazines. Additional magazines can be ordered to store cartridges outside of the library. Additional magazines should probably only be quoted at the customers request.

DLT8000 and SDLT220 Media Magazines

- SG-XMAGDLT-MOD

LTO Media Magazines

- SG-XMAGLTO-MOD

Notes:

- Each DLT/SDLT media magazine holds (10) cartridges.
- Each LTO media magazine holds (12) cartridges.

Step 7 (Required) Management Card

Order quantity (1). Allows customer to remotely manage the L25 via a web browser.

- SG-XMGMTCARD-MOD HVD Management Card for DLT8000, SDLT220 and LTO Libraries.

Notes:

- The Management Card is only required in one of the libraries when StackLinking multiple libraries together.

Step 8 (Optional) L25 Cosmetic Cover and Caster Kit

Order quantity (1) if customer wants to convert the rackmount L25 library to a deskside L25.

- SG-XLIBCOV-L25

Step 9 (Optional) StackLink Assemblies

Order quantity (1) if customer wants to connect multiple libraries together.

StackLink2, to connect (2)L25s together
- SG-XSTACK2-MOD (8 rack units)

StackLink5, to connect (5)L25s together, **OR** to connect (1)L100 and (1)L25 together
- SG-XSTACK5-MOD (20 rack units)

StackLink7, to connect (7)L25s together, **OR** to connect (1)L100 and up to (3)L25s together
- SG-XSTACK7-MOD (28 rack units)

Notes:
- Libraries using different drive types **cannot** be stacklinked together.

L100 Configuration Guide (SCSI - LVD) (SDLT320, LTO, LTO2)

Step 1 (Required) L100 Library Base Configuration

Order quantity (1)

- SG-XLIBL100SDLV-BS L100 SDLT320 Base Low-Voltage Differential (LVD)
- SG-XLIBL100LLV-BS L100 LTO/LTO2 Base Low-Voltage Differential (LVD)

Notes:

- Base configurations do not include any tape drives and need to be ordered separately.

Each Base Config Includes:

- Library Enclosure (Rackmount)
- US Power Cord and power cord jumper cable
- Install and User Guides CD-ROM
- (99) SDLT data cartridge barcode labels and (33) cleaning cartridge barcode labels (SDLT Only)
- (220) LTO/LTO2 data cartridge barcode labels and (33) cleaning cartridge barcode labels (LTO/LTO2 Only)
- Installation

Step 2 (Optional) Tape Drives

Order up to (6) per L100.

- SG-XTAPSDLT3-MOD SDLT320 Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)
- SG-XTAPLTOLVD-MOD LTO LVD Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)
- SG-XTAPLTO2LVD-MOD LTO2 LVD Tape Drive Low-Voltage Differential (LVD) (HD68 Connector)

Notes:

- If a sixth tape drive is installed, the customer will **lose** (12) LTO/LTO2 cartridge slots or (10) DLT/SDLT cartridge slots.
- Different drive types **cannot** be mixed in a library.

Each Tape Drive Includes:

- Tape drive
- Installation guide
- SCSI jumper cable and Terminator
- (2) drive filler plates

Step 3 (Required) Host Bus Adapters

Order appropriate HBA and quantity. (see notes)

- X6758A PCI, Dual-channel Low-Voltage Differential (LVD) (VHDCI Connectors)

Notes:

- One X6758A needed for each (4) SDLT320, LTO or LTO2 LVD tape drives in the library. Up to (2) drives can be connected to each X6758A SCSI channel.

Step 4 (Required) SCSI Cables

Order appropriate cable and quantity. (see notes)

- X3830A 4-meter for use with the X6758A HBA (HD68-VHDCI68 connectors)
- X3831A 10-meter for use with the X6758A HBA (HD68-VHDCI68 connectors)

Notes:
- Order (1) cable for each (2) SDLT320, LTO or LTO2 LVD tape drives in the library.

Step 5 (Optional) Media

SDLT320 Media
- SG-XMEDSDLT220-10 10 pack of SDLT320 data cartridges
- SG-XMEDSDLTCL-10 10 pack of SDLT320 cleaning cartridges

LTO Media
- SG-XMEDLTO100GB-10 10 pack of LTO data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO/LTO2 cleaning cartridges

LTO2 Media
- SG-XMEDLTO200GB-10 10 pack of LTO2 data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO/LTO2 cleaning cartridges

Step 6 (Optional) Additional Media Magazines

Each L100 ships with (8) media magazines. Additional magazines can be ordered to store cartridges outside of the library. Additional magazines should probably only be added at the customers request.

SDLT320 Media Magazines
- SG-XMAGDLT-MOD

LTO and LTO2 Media Magazines
- SG-XMAGLTO-MOD

Notes:
- Each SDLT media magazine holds (10) cartridges.
- Each LTO/LTO2 media magazine holds (12) cartridges.

Step 7 (Required) Management Card

Order quantity (1). Allows customer to remotely manage the L100 via a web browser.
- SG-XMGMTCARDL-MOD - LVD Management Card for SDLT320, LTO and LTO2 LVD Libraries.

Notes:
- The Management Card is only required in one of the libraries when StackLinking multiple libraries together.

Step 8 (Optional) L100 Cosmetic Cover and Caster Kit

Order quantity (1) if customer wants to convert the rackmount L100 library to a deskside L100.
- SG-XLIBCOV-L100

Step 9 (Optional) StackLink Assemblies

Order quantity (1) if customer wants to connect multiple libraries together.

StackLink5, to connect (1)L100 and (1)L25 together
- SG-XSTACK5-MOD (20 rack units)

StackLink7, to connect (2)L100s together, **OR** to connect (1)L100 and up to (3)L25s together
- SG-XSTACK7-MOD (28 rack units)

Notes:
- Libraries using different drive types **cannot** be stacklinked together.

L100 Configuration Guide (SCSI - HVD) (DLT8000, SDLT220, LTO)

Step 1 (Required) L100 Library Base Configuration

Order quantity (1)

- SG-XLIBL100D-BASE L100 DLT8000, SDLT220 Base High-Voltage Differential (HVD)
- SG-XLIBL100L-BASE L100 LTO Base High-Voltage Differential (HVD)

Notes:

- Base configurations do not include any tape drives and need to be ordered separately.

Each Base Config Includes:

- Library Enclosure (Rackmount)
- US Power Cord and power cord jumper cable
- Install and User Guides CD-ROM
- (99) DLT/SDLT data cartridge barcode labels and (33) cleaning cartridge barcode labels (DLT/SDLT Only)
- (220) LTO data cartridge barcode labels and (33) cleaning cartridge barcode labels (LTO Only)
- Installation

Step 2 (Optional) Tape Drives

Order up to (6) per L100.

- SG-XTAPDLT8-MOD DLT8000 Tape Drive High-Voltage Differential (HVD) (HD68 Connector)
- SG-XTAPSDLT2-MOD SDLT220 Tape Drive High-Voltage Differential (HVD) (HD68 Connector)
- SG-XTAPLTO-MOD LTO Tape Drive High-Voltage Differential (HVD) (HD68 Connector)

Notes:

- If a sixth tape drive is installed, the customer will **lose** (12) LTO cartridge slots or (10) DLT/SDLT cartridge slots.
- Different drive types **cannot** be mixed in a library.

Each Tape Drive Includes:

- Tape drive
- Installation guide
- SCSI jumper cable and Terminator
- (2) drive filler plates

Step 3 (Required) Host Bus Adapters

Order appropriate HBA and quantity. (see notes)

- X6541A PCI, Dual-channel High-Voltage Differential (HVD) (VHDCI Connectors)
- X1065A SBUS, Single-channel High-Voltage Differential (HVD) (HD68 Connector)
- X6749A cPCI, Dual-channel High-Voltage Differential (HVD) (VHDCI Connectors)

Notes:

Using DLT8000 Tape Drives

- One X6541A or X6749A needed for each (4) DLT8000 drives in the library. Up to (2) drives per SCSI channel.
- One X1065A needed for each (2) DLT8000 drives in the library.

Using LTO or SDLT220 Tape Drives
- One X6541A or X6749A needed for each (2) tape drives in the library. Only (1) drive per SCSI channel.
- One X1065A needed for each (1) tape drive in the library.

Step 4 (Required) SCSI Cables

Order appropriate cable and quantity. (see notes)
- X3830A 4-meter for use with the X6541A and X6749A HBAs (HD68-VHDCI68 connectors)
- X3831A 10-meter for use with the X6541A and X6749A HBAs (HD68-VHDCI68 connectors)
- X979A 12-meter for use with the X1065A HBA (HD68-HD68 connectors)

Notes:
- Order (1) cable for each (2) DLT8000 tape drives in the library.
- Order (1) cable for each (1) LTO or SDLT220 tape drive in the library.
- The X6541A HBA ships with two 2-meter SCSI cables, so additional cables may not be needed.

Step 5 (Optional) Media

DLT8000 Media
- SG-XMEDDLTCIV-10 10 pack of DLT data cartridges
- SG-XMEDDLTCL-10 10 pack of DLT cleaning cartridges

SDLT220 Media
- SG-XMEDSDLT220-10 10 pack of SDLT220 data cartridges
- SG-XMEDSDLTCL-10 10 pack of SDLT220 cleaning cartridges

LTO Media
- SG-XMEDLTO100GB-10 10 pack of LTO data cartridges
- SG-XMEDLTOUNVCL-10 10 pack of LTO cleaning cartridges

Step 6 (Optional) Additional Media Magazines

Each L100 ships with (8) media magazines. Additional magazines can be ordered to store cartridges outside of the library. Additional magazines should probably only be added at the customers request.

DLT8000 and SDLT220 Media Magazines
- SG-XMAGDLT-MOD

LTO Media Magazines
- SG-XMAGLTO-MOD

Notes:
- Each DLT/SDLT media magazine holds (10) cartridges.
- Each LTO media magazine holds (12) cartridges.

Step 7 (Required) Management Card

Order quantity (1). Allows customer to remotely manage the L100 via a web browser.
- SG-XMGMTCARD-MOD HVD Management Card for DLT8000, SDLT220 and LTO Libraries.

Notes:

- The Management Card is only required in one of the libraries when StackLinking multiple libraries together.

Step 8 (Optional) L100 Cosmetic Cover and Caster Kit
Order quantity (1) if customer wants to convert the rackmount L100 library to a deskside L100.
- SG-XLIBCOV-L100

Step 9 (Optional) StackLink Assemblies
Order quantity (1) if customer wants to connect multiple libraries together.
StackLink5, to connect (1)L100 and (1)L25 together
- SG-XSTACK5-MOD (20 rack units)

StackLink7, to connect (2)L100s together, **OR** to connect (1)L100 and up to (3)L25s together
- SG-XSTACK7-MOD (28 rack units)

Notes:
- Libraries using different drive types **cannot** be stacklinked together.

Ordering Bar Code Labels

Order additional bar code labels through EDP Colorflex:

USA

EDP/Colorflex

697 South Pierce Street

Louisville, CO 80027

(888) 438-8362

Europe

EDP/Colorflex

43 Redhills Road

South Woodham Ferrers

Chelmsford, Essex

CM35UL, UK44-1245-322380

Via the Web at http://www.colorflex.com. EDP/Colorflex will take orders direct but by credit card only. Customers wishing to place purchase orders will be directed to an EDP/Colorflex reseller.

Upgrades

Upgrade Paths

Sun strongly encourages upgrades from previous generations of Sun StorEdge™ tape libraries to the current LVD library line.

Upgrades for the Sun StorEdge L25 and L100 libraries were announced on October 1, 2002 in Sun Product Intro Q1FY2003-15I:

Upgrade are available from the Sun StorEdge L3500, L180, L1000, L20, L40, and L60 libraries to the Sun StorEdge L100 library.

Upgrade are available from the Sun StorEdge L140, L280, L400, L9, and L20 libraries to the Sun StorEdge L25 library.

This is a full tape library replacement. No tape drives migrate from existing Sun tape libraries to the Sun StorEdge L25 or L100 libraries. Customer trades in the base and all installed tape drives.

The library being upgraded must be owned by, used by, and in the possession of the customer a least (90) days prior to upgrading. To qualify for the upgrade allowance, customer must return within 60 days, a full functioning system.

To determine the value of the trade-in, apply the allowance to the base of the Sun StorEdge L25 or L100 libraries and the associated tape drives to be installed.

RMA kits (UG-RMA) must be ordered with each allowance code. UG_RMA kits provide customer instructions on where to return the used(residual) equipment.

Further information on Sun UAP and the Sun Upgrade Pathfinder and to estimate the trade-in value go to www.sun.com/upgrades.

Supported Platforms

HVD	LVD
Sun Ultra™ 60, 80	Sun Blade™ 1000, 2000
Sun Blade™ 1000, 2000	Sun Enterprise™ 220R, 250, 420, 450 servers
Sun Enterprise™ 220R, 250, 420R, 450, X500, 10000	Sun Fire™ 280R, v480R, v880, v1280, 4800, 4810, 6800, 12K, 15K
Sun Fire™ 280R, V480R, V880, X800, 4810, 12000, 15000	

Total Cost of Ownership (TCO)

The sophisticated customer realizes that the acquisition cost is only part of the true price of the product. The price of the on-going service, support, and infrastructure can be several times greater than the initial cost

The tangible costs can be easily measured and calculated for these libraries and are shown in the next chart. However, there are many intangible costs that greatly increase the impact on the organization.

The library reliability and management features can either enhance or diminish the productivity of the entire company.

If IT professionals are wasting time on problems with a low-reliability, low-availability product, their productivity (or lack thereof) is felt by the entire business. The primary job of the IT person is to ensure top network performance: e-mail running, databases online and secure, and general system health. If those issues are sidelined because of the library, the productivity of the entire company is at risk if a mission-critical function becomes unavailable.

This is why all aspects of the Sun StorEdge L100 and L25 systems have been designed and manufactured to ensure that the operating costs provide the best advantage to the customer.

Service and Support

Support Programs

The SunSpectrum℠ program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission-critical support for maximum solution availability to backup assistance for self-support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris™ Operating Environment software, and telephone support for Sun™ software packages. Customers should check with their local Sun Enterprise Services representatives for program and feature availability in their areas.

SunSpectrum program support contracts are available both during and after the warranty program. Customers may choose to uplift the service and support agreement to meet their business needs by purchasing a SunSpectrum contract. For more information on the SunSpectrum program offerings refer to the following URL: `http://www.sun.com/service/support/sunspectrum/index.html`

The three levels of SunSpectrum support contracts available for the Sun StorEdge L25 and L100 libraries are outlined below.

Program	Description
Mission-Critical SunSpectrum Platinum℠ Support	Designed to support client-server, mission critical solutions by focusing on failure prevention, rapid recovery and year round technical services planning. Support is provided 24 x 7.
Business-Critical SunSpectrum Gold℠ Support	Includes a complete package of proactive and responsive services for customers who require maximum uptime for their strategic business-critical systems. Support is provided 24 x 7.
System Coverage SunSpectrum Silver℠ Support	Combines the service expertise, responsive on-site support and technical support by telephone and SunSolve™ CD/on-line services. Support is provided 8 a.m. to 8 p.m. Mon. through Fri.

Warranty

The standard warranty for the Sun StorEdge™ L25 and L100 tape libraries are one year, next business day on-site. Visit the warranty website at: `http://www.sun.com/service/support/warranty/` for more information on Sun hardware warranties.

Bundled Installation — Sun StorEdge L100 Library Only

Installation services are included with the Sun StorEdge L100 base library sale. (L25 customers can have the product installed by Sun Service on a time and materials basis)

Installation is coordinated as part of the overall Service Notification Process. All installations must be performed by Quantum-SSG or a Quantum-SSG authorized service provider.

Service Notification Process

Due to the outsourcing of support to Quantum-SSG, the Sun StorEdge L25 tape library must follow a Service Notification process prior to order shipment.

Education

A new product training module is available at GA date. This Web-based, self-paced training course is available anytime and anywhere to Sales Reps, SEs, and Channel Partners worldwide at the following URLs.

- **From the Partner Portal (`http://channel.sun.com/`)**

  1. Go to "Training" tab at the top of the page
  2. Click "Sun Competency"
  3. Click "Sun Competency Partner Web-Based Training"
  4. Log in (New users complete the "new account" registration page.)
  5. Click "New Products"

Sun Professional Service

Sun Professional Service Engagement offers a range of Tape Library Implementation Services, which, when combined, deliver a working Sun StorEdge L25 and/or L100 tape library backup system. Generally speaking, they integrate the hardware and software components together. This provides customers with a platform that can be used to develop and implement their production backup and restore policies. The Sun Professional Service Engagement Tape Library Implementation Services available include:

- Sun StorEdge L25, L100 Tape Library Implementation
- VERITAS NetBackup Implementation
- Solstice Backup Implementation
- VERITAS NetBackup/Solstice Backup Oracle HotBackup Implementation

The services, when combined, address the following customer needs:

- Functional testing of the tape library
- Configuration of either VERITAS NetBackup or Solstice Backup™ software with the backup server system and tape library
- Configuration of Oracle HotBackup software for either VERITAS NetBackup or Solstice Backup
- Functional testing of the backup server with an existing client system using single files of UFS for backup and restores.

The customer deliverables are:

- Tape library tested and functional in a production environment
- Full configuration documentation

Hardware installation is not covered under the Sun Professional Service Engagement Tape Implementation Services. The hardware must be installed prior to this service being performed. Sun

Professional Service Engagement Tape Library Implementation Services cover configuration of the tape library, installation and configuration of VERITAS NetBackup or Solstice Backup software and the installation and configuration of Oracle HotBackup for either VERITAS NetBackup or Solstice Backup. Only Oracle backup is addressed by the Sun Professional Service Engagement Tape Implementation Services. Other database offerings can be provided as a separate quote by Sun Professional Service Engagement Services, however.

These services, when combined, provide a basic functional, tested backup and restore platform, but does not develop any policies, procedures, nor is the backup and restore platform ready for full production. Additional service needs that customers may have can be discussed with the Sun Enterprise Support Service Sales Representative.

A Statement of Work must be completed and approved by the customer and included with the Sales Quote. This ensures a successful Sun Professional Engagement Tape Library Implementation Service for the customer. The Statement of Work details what activities are performed by Sun Professional Service Engagement Services, the responsibilities of the customer, as well as specific terms and conditions of the service. Contact the local Sun Enterprise Support Service Sales Representative as early in the sales cycle as possible to complete this SOW and to help ensure the included Sun Professional Service Engagement Services can meet customers' needs.

Glossary

Actuators	Robotic components that move inside the library to manipulate cartridges. These include the gripper, extension axis, and vertical and horizontal axes.
Archive	The process of moving data from one medium to another where it is stored for later use.
Autoloader	A peripheral device that contains • A mechanism for moving cartridges sequentially or under program control • Several storage locations for storage media • One drive capable of reading or writing the media • Interface circuitry When commanded by a host system, autochangers can transport media back and forth between storage locations and the drive residing in the autoloader.
Automatic tape library	A robotic storage and retrieval system for digital linear tape cartridges.
Backup	The process of copying data to a secondary medium for protection in the event that the original copy is lost and needs to be recovered.
Bar code label	The identification label on digital linear tape cartridges.
Bin	A storage receptacle for a tape cartridge.
Compression	A procedure in which data is transformed by the removal of redundant information in order to reduce the number of bits required to represent the data.
Control panel	The panel on the front of the library that contains the Status Display Area, as well as the indicators and control button.
cPCI	The "c" in cPCI stands for compact. PCI connectors on board-level devices can use compact PCI (cPCI) connectors.
Differential	*See* Single-ended.
DLT	Digital linear tape. Linear tape recording technology (contrasted with helical scan). Digital linear tape technology segments tape media into parallel, horizontal tracks, and records data by running the tape past a stationary head. digital linear tape provides higher performance than helical scan technology.
Fibre Channel	A very high-speed, full-duplex data communications scheme that is optimized to carry large blocks of data, with very low latency (10 to 30 msec.) for both channel-type and LAN-type connections.
Host	The host computer system acting as controller for the drive.
Host adapter	A device that connects a peripheral device I/O protocol and medium to the computer system's I/O bus.
Host computer	The computer that issues SCSI commands to control the library robotics.

HSM	Hierarchical storage management. A method for keeping infrequently used data in secondary storage, then restoring it automatically when a user calls for the data. The underlying premise behind HSM is that if the most frequently used data is kept in the fastest (primary) storage, most of the time users perceive the overall system performance as if all the data were in fast storage. HSM software transparently "migrates" least frequently used data to more economical media, then restores it automatically as needed. HSM systems can provide users with performance and economy without sacrificing application portability or storage system transparency.
IOPS	Input/output operations per second, a measure of I/O performance usually used to quote random I/O performance.
LCD	Liquid crystal display.
Load	The process in which a drive takes in an inserted cartridge and goes online.
Load port	The operator-accessible component of the library that allows cartridges to be import/export loaded and unloaded into/from the library.
Magazine	A holder for tape cartridges used in robotic handling of media.
MCBF	Mean cycles between failure. An activity-dependent measure of reliability for a robotic cartridge handling system.
MSBF	Mean swaps between failure. A measure of reliability for the robotic cartridge handling system, this is the average expected number of full cartridge exchanges (i.e., the cartridge is unloaded from the digital linear tape drive and placed back into its storage slot, and a new cartridge is removed from its storage slot and loaded into the tape drive) between failures of equipment.
MTBF	Mean time between failure. The average expected time between failures of equipment, usually measured in operating hours.
MTTR	Mean time to repair.
Offline	A drive is offline if a tape is currently unloaded or not in the drive. The host has limited access, and cannot perform any commands that would cause tape motion. The host can, however, load a tape if one is inserted and can execute any diagnostic tests that do not require tape motion.
Online	A drive is online when a tape is loaded. The host has access to all command operations, including those that access the tape, set configurations and run diagnostic tests.
PCI	Peripheral component interconnect. PCI is an industry standard bus used in servers, workstations, and PCs.
Pick	Preparation for placing cartridge in another location.
Rear panel	The rear cosmetic panel of the library that contains the AC power switch, AC power receptacle and connectors for attaching external cabling to the library.
Robotics	The library robotics consist of the following components: gripper mechanism, vertical actuator, horizontal actuator, and extension actuator.
SBus	An I/O (input/output) bus used with host systems or boards designed according to SPARC™ processor architecture.

SCSI	Small computer system interface. A standard command specification and command set that enables computers and peripherals to communicate with each other. Sun's current of tape drives adhere to the SCSI-2 specification.
SCSI address	The octal representation of the unique address (0-7) assigned to a narrow device, or hexadecimal representation of the unique address (0-15) assigned to a wide SCSI device.
Sequential access	Sequential access devices store data sequentially in the order received. Tape devices are the most common sequential access devices. By contrast, disk drives are direct access devices, where data is stored in blocks, not necessarily sequentially.
Single-ended	SCSI devices can be single ended or differential. Single-ended devices transmit signals by setting a line in the cable to a pattern of high and low voltages in relation to a ground line. Differential devices send signals by swapping over high and low states between two lines. This is more expensive to implement, but reduces interference and allows longer cable lengths. Single-ended and differential devices must not be mixed on one SCSI bus.
StackLink	A mechanism that connects two or more Sun StorEdge L25 and/or L100 units by enabling cartridges to be passed from a slot in one module to an available drive in another module.
SWIS/S	Single-ended, wide, intelligent SCSI/SBus host adapter.
Termination	A SCSI bus (or cable) can have many devices plugged into it, but the end of the cable furthest from the host computer must always be terminated to avoid signals being reflected back and interfering with other signals. The terminator both absorbs signals and provides power to the lines in the cable. For this reason, it must itself be provided with power. Terminators can be of two types, active and passive.
Tape library	Type of tape autochanger that allows media to be accessed randomly.
Throughput	A measure of sequential I/O performance, quoted in MB per second. *See* IOPS.
Transfer rate	The rate at which data is transferred from one device to another, for example from the host computer to the tape drive during backup.

Materials Abstract

All materials will be available on SunWIN except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Product Literature				
– *Sun StorEdge™ L25 and L100 Modular Tape Libraries, Just the Facts*	Reference Guide (this document)	Training Sales Tool	SunWIN, Reseller Web	351394
References				
– *Sun StorEdge L25 and L100 Tape Libraries, Data Sheet*	Data Sheet for Product	Sales Tool	SunWIN, Reseller Web, COMAC	351395
– *Sun StorEdge Product Family Overview Quick Reference Card*	Quick Reference Card	Sales Tool	SunWIN	73691
External Web Sites				
– *Sun StorEdge Web Site*	http://www.sun.com/storage			
– *Tape Backup Solutions Main Page*	http://www.sun.com/storage/tape.html			
– *Sun StorEdge L25 webpage*	http://www.sun.com/storage/tape/l25/index.html			
– *Sun StorEdge L100 webpage*	http://www.sun.com/storage/tape/L100/index.html			

Future/Roadmap

Support of the Sun StorEdge L25 and L100 libraries in the Sun Rack 900 is in process. Please refer to the "Product Availability Matrix" for tape drive technology information. Fibre Channel bridge x-option is in the qualification process and is scheduled for Q1FY04.

Contact the product manager for additional details, as needed.